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REGION 1



## Federal Emergency Management Agency

Region II

Jacob K. Javits Federal Building  
26 Federal Plaza, Room 1307  
New York, NY 10278-0002

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June 18, 2003

Mr. Hubert J. Miller, Regional Administrator  
U.S. Nuclear Regulatory Commission  
NRC Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

Dear Mr. Miller:

Enclosed is a copy of the Final Exercise Report for the March 19, 2002, Plume Exposure Pathway Exercise of the offsite radiological emergency response plans specific to the Salem/Hope Creek Nuclear Power Station. The State of New Jersey participated in this exercise, as well as Salem and Cumberland Counties in New Jersey, including eight risk municipalities. The Final Exercise Report was prepared by the Federal Emergency Management Agency (FEMA), Region II staff. FEMA Region II staff will forward a copy of this report to the State of New Jersey.

No Deficiencies were observed during the March 19, 2002 exercise.

Based on the results of the March 19, 2002 exercise, it has been determined that the offsite radiological emergency response plans for the State of New Jersey, and the affected local jurisdictions, specific to the Salem/Hope Creek Nuclear Power Station, can be implemented and are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site.

If there are any questions regarding this matter, please contact Robert F. Reynolds, FEMA Region II RAC Chairperson at (212) 680-3621.

Sincerely yours,

A handwritten signature in black ink, appearing to read "J. Picciano", is written over a circular stamp that is partially visible.

Joseph Picciano  
Acting Regional Director

Enclosure

Cc: Vanessa E. Quinn, FEMA Headquarters  
Patricia C. Tenorio, FEMA Headquarters  
Eric Weiss, NRC Headquarters  
Robert J. Bores, NRC Region I



## **Exercise Report**

# **SALEM/HOPE CREEK NUCLEAR GENERATING STATION**

**Licensee:** Public Service Electric and Gas Company

**Exercise Date:** March 19, 2002

**Report Date:** June 16, 2003

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**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**REGION II**

**26 Federal Plaza**

**New York, New York 10278**

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## I. EXECUTIVE SUMMARY

On March 19, 2002, an exercise was conducted in the plume exposure pathway emergency planning zone (EPZ) around the Salem/Hope Creek Nuclear Generating Station (S/HC NGS) by the Federal Emergency Management Agency (FEMA), Region II. The purpose of the exercise was to assess the level of State and local preparedness in responding to a radiological emergency. This exercise was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans and procedures.

The most recent exercise at this site was conducted on April 11, 2000. FEMA evaluated a State-graded exercise on March 20, 2001, and all outstanding Areas Requiring Corrective Action (ARCAs) were resolved. The qualifying emergency preparedness exercise was conducted on April 8, 1981.

FEMA wishes to acknowledge the efforts of the many individuals in New Jersey State, Salem County, Cumberland County, the Town of Lower Alloways Creek, Salem City, and the Townships of Pennsville, Mannington, Quinton, Stow Creek, Elsinboro, and Greenwich who participated in this exercise.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork by all the participants were evident during this exercise.

This report contains the final evaluation of the biennial exercise and the evaluation of the following out-of-sequence activities:

State Access Control Point .....	4/12/02
Salem County EV-2 Interviews and Bus Run .....	4/12/02
Salem County Congregate Care Center .....	4/12/02
Salem County General Population Bus Run .....	4/12/02
Salem County Reception Center .....	5/22/02
Salem County Emergency Worker Decontamination Center .....	4/04/02
Salem County Medical Services Drill .....	5/23/02
Cumberland County EV-2 Interviews and Bus Run .....	4/23/02
Cumberland County Congregate Care Center .....	4/23/02
Cumberland County General Population Bus Run .....	4/12/02

The State and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately

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implemented them. There were no Deficiencies; no areas requiring corrective action were identified as a result of this exercise.



## II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all offsite nuclear planning and response. FEMA's activities are conducted pursuant to 44 Code of Federal Regulations (CFR) Parts 350, 351, and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

FEMA Rule 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local government participation in joint exercises with licensees.

FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

- Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans (RERPs) and procedures developed by State and local governments;
- Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments;
- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (*Federal Register*, Vol. 58, No. 176, September 14, 1993); and
- Coordinating the activities of the following Federal agencies with responsibilities in the radiological emergency planning process:
  - U.S. Department of Commerce;
  - U.S. Nuclear Regulatory Commission;
  - U.S. Environmental Protection Agency;
  - U.S. Department of Energy;
  - U.S. Department of Health and Human Services;
  - U.S. Department of Transportation;
  - U.S. Department of Agriculture;
  - U.S. Department of the Interior; and
  - U.S. Food and Drug Administration.

Representatives of these agencies serve on the FEMA Region II Regional Assistance Committee (RAC) which is chaired by FEMA.

Formal submission of the RERPs for the S/HC NGS to FEMA Region II by the State of New Jersey and involved local jurisdictions occurred on February 3, 1982. Formal approval of the RERPs, under 44 CFR 350, by FEMA Headquarters is pending.

A REP exercise was conducted on March 19, 2002, by FEMA Region II to assess the capabilities of State and local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the S/HC NGS. The exercise was staged for the Hope Creek reactor at the Salem/Hope Creek site. The purpose of this exercise report is to present the exercise results and findings on the performance of the offsite response organizations (ORO) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluation team, with final determinations made by the FEMA Region II RAC Chairperson, and approved by the Regional Director.

The criteria utilized in the FEMA evaluation process are contained in:

- NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;
- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991; and
- FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991.

Section III of this report, entitled "Exercise Overview," presents basic information and data relevant to the exercise. This section of the report contains a description of the plume pathway EPZ, a listing of all participating jurisdictions and functional entities that were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

Section IV of this report, entitled "Exercise Evaluation and Results," presents detailed information on the demonstration of applicable exercise objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and ARCAs assessed during this exercise, recommended corrective actions, and the State and local governments' schedule of

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corrective actions for each identified exercise issue, and (2) descriptions of unresolved ARCAs assessed during previous exercises and the status of the OROs' efforts to resolve them.

### **III. EXERCISE OVERVIEW**

Contained in this section are data and basic information relevant to the March 19, 2002, exercise to test the offsite emergency response capabilities in the area surrounding the S/HC NGS. This section of the exercise report includes a description of the plume pathway EPZ, a listing of all participating jurisdictions and functional entities that were evaluated, and a tabular presentation of the time of actual occurrence of key exercise events and activities.

#### **A. Plume Emergency Planning Zone Description**

##### **1. Site Vicinity Description**

There are two nuclear generating stations (three units) located on Artificial Island. The nuclear generating stations are Salem Nuclear Generating Station Units 1 and 2, and the Hope Creek Nuclear Generating Station. The stations are adjacent to each other and located on the southern tip of the Artificial Island in the Town of Lower Alloways Creek Township, Salem County, New Jersey. The two stations are owned and operated by the Public Service Electric and Gas Company (PSEG), located at 80 Park Plaza, Newark, New Jersey.

The Artificial Island (actually an artificial peninsula) projects from the eastern shore about one-third of the way across the Delaware River, which has a width of about two and one-half miles at this location. The stations are roughly midway between Wilmington and Dover, Delaware, which are approximately 20 miles north and south of the site, respectively. Philadelphia is about 32 miles north-northeast of the site and Salem City is about seven and one-half miles north-northeast of the site.

There are no major highways or railroads within seven miles of the site. The only road access is via the PSEG road that connects to an existing secondary road three miles to the east of the site. There is also a waterborne access by way of the inter-coastal waterway channel.

The site is situated on the low-lying coastal plain in New Jersey. The region features extensive marsh and meadowlands. Most of the land within three miles of the site is undeveloped, being made up of tidal marshes or river water. The nearest permanent resident on the New Jersey shore is approximately three miles east of the area. Most of the land within the five counties surrounding the area is undeveloped (48 percent) or is used for agriculture (42 percent). Developed urban areas constitute about 10 percent of the available land. Major farm products

within the 25-mile radius include vegetables, poultry, dairy products, and field crops.

The net tidal flow is estimated at 400,000 cubic feet per second which produces a relatively high current velocity in the station vicinity. The water of the Delaware River at Artificial Island, and for some 25 miles upstream, is brackish. Therefore, the water is basically used by industry for cooling applications and not as a domestic water supply in this region. On the New Jersey side of the Delaware River there are six towns within the 25-mile radius of the site. All have public water supplies. Salem City is the only municipality that obtains water from surface sources (Alloways Creek, about eight miles south-east of the area). Nearly all the water supply for private use is also obtained from wells, most of which are two inches in diameter and more than 75' deep. No non-productive wells exist close to the site, and the nearest residences (summer cottages) are about three miles away.

## **2. Governments Within the 10-Mile Emergency Planning Zone**

The area within 10 miles of the Artificial Island site encompasses small portions of both New Jersey and Delaware. The State of Delaware has its own RERP in case of a radiological emergency at the Artificial Island site. The plume exposure EPZ in the State of New Jersey is located within two counties and eight municipalities:

### Salem County

Elsinboro Township  
Town of Lower Alloways Creek Township  
Mannington Township  
Quinton Township  
Salem City  
Pennsville Township

### Cumberland County

Greenwich Township  
Stow Creek Township

The plume exposure EPZ is inhabited by approximately 20,703 people (based on 1990 census data) with the following breakdown by county:

Salem County	19,685
Cumberland County	<u>1,018</u>
Total	20,703

## **B. Exercise Participants**

The following agencies, organizations, and units of government participated in the S/HC NGS exercise on March 19, 2002.

### **STATE OF NEW JERSEY**

#### **New Jersey State Agencies and Organizations**

New Jersey Office of Emergency Management  
New Jersey Bureau of Nuclear Engineering  
New Jersey Bureau of Communication and Support Service  
New Jersey Bureau of Radiological Health  
New Jersey State Police  
New Jersey Department of Environmental Protection and Energy  
New Jersey Department of Health  
New Jersey Department of Transportation  
New Jersey Department of Education  
Governor's Office  
New Jersey Department of Agriculture  
Board of Public Utilities  
Department of Law & Public Safety  
Department of Military & Veterans Affairs  
New Jersey Transit  
Office of Attorney General  
National Guard  
Delaware Emergency Management Agency  
Delaware Department of Health

#### **Private/Volunteer Organizations**

Radio Amateur Civil Emergency Service (RACES)  
WSNJ Emergency Alert System (EAS) Gateway Station  
Salvation Army  
Public Service Electric and Gas (PSEG)  
American Red Cross  
Penn State University  
Hershey Medical Center

## **RISK JURISDICTIONS - COUNTIES**

### **SALEM COUNTY**

#### **County Agencies and Organizations**

Salem County Office of Emergency Management  
Salem County Road & Highways  
Salem County Schools  
Salem County Freeholders  
Salem County Public Works  
Salem County Fire Department  
Salem County Police Department  
Salem County Department of Agriculture  
Salem County Department of Health  
Salem County Department of Building and Maintenance

#### **New Jersey State Agencies and Organizations**

New Jersey Office of Emergency Management  
New Jersey State Police

#### **Municipal Agencies and Organizations**

Salem County Office of Emergency Management  
Town of Lower Alloways Creek Emergency Management Agency  
Town of Lower Alloways Creek Police Department  
Town of Lower Alloways Creek Legislative Committee  
Town of Lower Alloways Creek Fire and Rescue Company  
Town of Lower Alloways Creek EMS and Rescue  
Pennsville Township Office of Emergency Management  
Pennsville Township Police Department  
Pennsville Township Fire Department  
Pennsville Township Public Works  
Pennsville Township Mayor's Office  
Salem City Police Department  
Salem City Fire Department  
Salem City Public Works  
Salem City Emergency Medical Services  
Salem City Council  
Salem City Public Information  
Mannington Township Office of Emergency Management

Quinton Township Office of Emergency Management  
Elsinboro Township Office of Emergency Management

**Private/Volunteer Organizations**

Civil Air Patrol  
Salvation Army  
American Red Cross  
RACES  
R.H. Williams Bus Company  
PSEG

**CUMBERLAND COUNTY**

**County Agencies and Organizations**

Cumberland County Emergency Management  
Cumberland County Board of Freeholders  
Cumberland County Fire Police Department  
Cumberland County Fire Department  
Cumberland County Department of Public Works  
Cumberland County Health Department  
Cumberland County Sheriff Department  
Cumberland County Superintendent of Schools  
Cumberland County Department of Agriculture  
Cumberland County Prosecutor  
Cumberland County Department of Nursing  
Cumberland County Human Resources  
Cumberland County 911 Dispatch

**New Jersey State Agencies and Organizations**

New Jersey Department of Transportation  
New Jersey Office of Emergency Management

**Municipal Agencies and Organizations**

Greenwich Township Office of Emergency Management  
Greenwich Township Fire Police  
Stow Creek Township Office of Emergency Management



**Private/Volunteer Organizations**

RACES  
American Red Cross  
Salvation Army

**C. Exercise Timeline**

Table 1, on the following pages, presents the time at which key events and activities occurred during the S/HC NGS exercise on March 19, 2002. Also included are times notifications were made to the participating jurisdictions/functional entities.



**Table 1. Exercise Timeline**

**April 11, 2000 - Salem/Hope Creek Nuclear Generating Station**

Emergency Classification Level or Event	Time Utility Declared	Time That Notification Was Received or Action Was Taken							
		NJ State EOC	Salem County EOC	Cumberland EOC	ENC	EAS Station	NJ BNE- EOF	NJ BNE-FCP	Municipals
Alert	1653	1659	1714	1712	1745	N/A	N/A	1734	See Next Page
Site Area Emergency	1852	1901	1909	1910	1909	-	1854	1905	
General Emergency	1858	1908	1916	1915	1916	1931	1900	1905	
Simulated Rad. Release Started	1850	1901	1905	1905	N/A	-	1900	1917	
Simulated Rad. Release Terminated	2200	N/A	N/A	N/A	N/A	-	2200	N/A	
Facility Declared Operational		1802	1754	1814	1830	-	1806	1803	
Governor's Declaration of State of Emergency		1909	1908	1910	1909	-	2130	-	
Exercise Terminated		2221	-	2215	-	2215	2240	2200	
Early Precautionary Action Marine Advisory/Animal on Stored Feed		1839	1916	-	-	-	1920	1923	
1st Protective Action Decision Shelter ERPAs: 2, 3, 4, 5, 6, 7 Evac ERPAs: 1, 8		1928	1928	-	1920	1937	1935	1940	
1st Siren Activation		1936	1936	-	1936	-	1935	1936	
1st EAS Message Broadcast		1941, 1943	1941, 1943	-	1941, 1943	1941, 1943	1935	1941, 1943	
2nd Protective Action Decision Shelter ERPAs: 6, 7 Evac: ERPAs: 1, 2, 3, 4, 5, 8		2040	2040	-	2040	2056	2044	2040	
2nd Siren Activation		2048	2048	-	2048	-	2044	2048	
2nd EAS Message Broadcast		2053, 2055	2053, 2055	-	2053	2053, 2055	2044	2053, 2055	
KI Administration Decision: No KI		1949 2147	1949	-	1949	N/A	2100	2015 1840 ( requested)	

LEGEND: S - Support Jurisdiction D - Decision Making Jurisdiction A - Activating Jurisdiction N/A - Not Applicable N/O - Not Observed

**Table 1. Exercise Timeline**

**April 11, 2000 - Salem/Hope Creek Nuclear Generating Station (Municipals)**

Emergency Classification Level or Event	Time That Notification Was Received or Action Was Taken							
	Town of Lower Alloways Creek	Pennsville Township	Salem City	Marmington Township	Quinton Township	Elsinboro Township	Stow Creek Township	Greenwich Township
Alert	1655	1755	1730	1720	1725	1744	1728	1733
Site Area Emergency	1916	1916	1915	1918	1916	1911	1912	1918
General Emergency	1918	1927	1924	1958	1925	1922	1920	1924
Simulated Rad. Release Started	1925	1914	1915	1925	1926	1914	1940	1918
Simulated Rad. Release Terminated	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Facility Declared Operational	1737	1748	1841	1737	1737	1744	1815	1735
Governor's Declaration of State of Emergency	1942	1942	1941	1944	1944	1942	-	-
Exercise Terminated	2040	2155	2115	2200	2120	2155	2155	2145
Early Precautionary Action	1925	1927	1924	1929	1939	1927	1935	1918
1st Protective Action Decision	1943	1945	1948	1920	1928	1942	1935	1941
1st Siren Activation	1936	1936	1944	1920	1936	1936	1936	-
1st EAS Message Broadcast	1941, 1943	1944	1941, 1943	-	1941, 1943	1941, 1943	1941, 1943	-
2nd Protective Action Decision	2020 Evac	2049	2052	2112 Evac	2040	2046	2043	2052
2nd Siren Activation	N/A	2048	2052	N/A	2048	2048	2048	-
2nd EAS Message Broadcast	N/A	2053, 2055	2052	N/A	2053, 2055	2053, 2055	2053, 2055	-
KI Admin	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

LEGEND: S - Support Jurisdiction    D - Decision Making Jurisdiction    A - Activating Jurisdiction    N/A - Not Applicable    N/O - Not Observed

#### **IV. EXERCISE EVALUATION AND RESULTS**

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities which participated in the March 19, 2002, exercise to test the offsite emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the S/HC NGS.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in exercise objectives contained in FEMA-REP-14, REP Exercise Manual, September 1991. Detailed information on the exercise objectives and the extent-of-play agreement used in this exercise are found in Appendix 3 of this report.

##### **A. Summary Results of Exercise Evaluation**

The matrix presented in Table 2, on the following pages, presents the status of all exercise objectives from FEMA-REP-14 that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise objectives are listed by number and the demonstration status of those objectives is indicated by the use of the following letters:

- M Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercises)
- D Deficiency assessed
- A ARCA(s) assessed or unresolved ARCA(s) from prior exercise(s)
- N Not Demonstrated (Reason explained in Subsection B)

**Table 2. Summary Results of Exercise Evaluation**

March 19, 2002 - Salem/Hope Creek Nuclear Generating Station

JURISDICTION/FUNCTIONAL ENTITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
<b>State of New Jersey</b>																														
State Emergency Operations Center	M	M	M	M	M				M	M	M		M	M																
Dose Assessment	M	M	M	M	M		M							M																
Field Team Coordination	M	M	M	M	M	M		M						M																
State Radiological Field Monitoring Teams				M	M	M		M						M																
Emergency News Center	M	M		M									A	A																
Emergency Alert System - Gateway Station										M	M																			
State Access Control Point																	M													
<b>Salem County</b>																														
Emergency Operations Center	M	M	M	M	M					M				M																
School Interviews & Bus Run																M														
Congregate Care Center																			M											
Medical Drill																				M	M									
General Population Bus Run															M															
Reception Center																		M												
Emergency Worker Decontamination Center																						M								
<b>Salem County Risk Municipalities</b>																														
Town of Lower Alloways Creek	M	M	M	M	M																									
Pennsville Township	M	M	M	M	M																									
Salem City	M	M	M	M	M										M															
Mannington Township	M	M	M	M	M																									
Quinton Township	M	M	M	M	M																									
Elsinboro Township	M	M	M	M	M					M					M															
<b>Cumberland County</b>																														
Emergency Operations Center	M	M	M	M	M									M																
School Interviews & Bus Run																M														
Congregate Care Center																			M											
General Population Bus Run															M															
<b>Cumberland County Municipalities</b>																														
Greenwich Township	M	M	M	M	M										M															
Stow Creek Township	M	M	M	M	M										M															

LEGEND: M = Met (No Deficiency or ARCA(s) assessed; A = ARCA(s) assessed and/or unresolved prior ARCA(s) and no unresolved prior ARCA(s); T= O/S TBD; N = Not Demonstrated; D = Deficiency(ies) assessed; Blank = Not scheduled for demonstration

## **B. Status of Jurisdictions Evaluated**

This subsection provides information on the evaluation of each participating jurisdiction and functional entity, in a jurisdiction-based, issues-only format. Presented below is a definition of the terms, relative to objective demonstration status, used in this subsection.

- **Met** - Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- **Deficiency** - Listing of the demonstrated exercise objectives under which one or more Deficiencies were assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Actions** - Listing of the demonstrated exercise objectives under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** - Listing of the exercise objectives which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.
- **Prior ARCAs - Resolved** - Descriptions of ARCAs assessed during previous exercises which were resolved in this exercise and the corrective actions demonstrated.
- **Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior exercises which were not resolved in this exercise. Included is the reason the ARCA remains unresolved and recommended corrective actions to be demonstrated before or during the next biennial exercise.

The following are definitions of the two types of exercise issues which are discussed in this report.

- A **Deficiency** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant."

- An **ARCA** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance in an exercise that is not considered, by itself, to adversely impact public health and safety."

FEMA has developed a standardized system for numbering exercise issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering exercise issues among FEMA Regions and site-specific exercise reports within each Region. It is also used to expedite tracking of exercise issues on a nationwide basis.

The identifying number for Deficiencies and ARCAs includes the following elements, with each element separated by a hyphen (-).

- **Plant Site Identifier** - A two-digit number corresponding to the Utility Billable Plant Site Codes.
- **Exercise Year** - The last two digits of the year the exercise was conducted.
- **Objective Number** - A two-digit number corresponding to the objective numbers in FEMA-REP-14.
- **Issue Classification Identifier** - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- **Exercise Issue Identification Number** - A separate two (or three) digit indexing number assigned to each issue identified in the exercise.



**1. NEW JERSEY STATE**

**1.1 State Emergency Operations Center**

- a. MET: Objectives 1, 2, 3, 4, 5, 9, 10, 11, 13, and 14
- b. DEFICIENCY: None
- c. AREAS REQUIRING CORRECTIVE ACTION: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ARCAs - RESOLVED: None
- f. PRIOR ARCAs - UNRESOLVED: None

**1.2 Dose Assessment - Bureau of Nuclear Engineering - Emergency Operations Facility**

- a. MET: Objectives 1, 2, 3, 4, 5, 7, and 14
- b. DEFICIENCY: None
- c. AREAS REQUIRING CORRECTIVE ACTION: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ARCAs - RESOLVED: None
- f. PRIOR ARCAs - UNRESOLVED: None

**1.3 Field Team Coordination - Bureau of Nuclear Engineering - Forward Command Post**

- a. MET: Objectives 1, 2, 3, 4, 5, 6, 8, and 14
- b. DEFICIENCY: None
- c. AREAS REQUIRING CORRECTIVE ACTION: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ARCAs - RESOLVED: None

- f. **PRIOR ARCAs - UNRESOLVED:** None

**1.4 State Radiological Field Monitoring Teams**

- a. **MET:** Objectives 4, 5, 6, 8, and 14
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**1.5 Emergency News Center**

- a. **MET:** Objectives 1, 2, 4, and 13
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** Objective #12 & 13

**Emergency News Center – State of New Jersey**

**Issue: 02-02-12-A-01**

The first two media briefings were difficult for media representatives to follow and did not seem to follow a discernable format. In addition, it was not clear who was in charge during these briefings. The significant information should be provided at the beginning of each briefing and be presented in a condensed, easily understood format. The procedures that were used made it difficult for media representatives to quickly determine what was the most pertinent information to disseminate to the public. In addition, important information was omitted during the first two briefings. For example:

- The briefings did not explain the information included in the EAS messages, (which had already been broadcast) and what actions the public should take.
- The public information brochure / calendar was only mentioned in the last the briefing, which began at 21:30.

- On one occasion it became necessary to provide an interim briefing “change of classification update” for the media. A PSE&G spokesman provided that update, rather than a State spokesman, which reinforced the impression that the utility was in charge.

**Recommendation:** The briefings would flow more smoothly if the first information provided to the media concerned the current status of the situation at the plant and then moved to the most significant information for the public: protective actions.

The representatives from PSE&G, New Jersey Office of Emergency Management, and the Salem County Emergency Management Office should: review and revise the plans and procedures for operations at the Emergency News Center, and train together in a joint workshop with FEMA. The revised plans and procedures should clearly identify who is in charge at all times and who has lead responsibility for conducting briefings both before and after protective actions have been ordered by the Governor or his designee.

It is also recommended that a Power Point slideshow be developed that would remain up on the screens in the press briefing room that would stress critical information, for example: plant status, emergency protective actions, and rumor control numbers for each state.

**Schedule of Corrective Actions:** This objective will be re-demonstrated in an out of sequence activity prior to the next biennial exercise.

**Planning Issue:** The New Jersey SOP-601 does not specifically require the distribution of the EAS messages to the new media representatives at the ENC. However, since only specific radio stations transmit the EAS messages, other media outlets rely on hard copies of what was transmitted. Copies of all EAS messages need to be available at the ENC for distribution to all media representatives.

**Recommendation:** The SOP should be revised to specifically require copies of all EAS messages be distributed in the media briefing room. Also SOPs should be revised to include a reminder to maintain logs of EAS messages and news releases at the ENC.

#### **Emergency News Center – State of New Jersey**

**Issue: 02-02-13-A-02**

Important information was omitted during the first two briefings and misinformation was provided to the media. For example: At one point the Salem County PIO recommended that transportation-dependent individuals call 911 for assistance. The New Jersey PIO did subsequently provide the correct information - to have individuals call a toll free number

that rings at the State EOC – but this was well after the incorrect information would have already been broadcast live from the briefing room.

**Recommendation:** The representatives from PSE&G, New Jersey Office of Emergency Management, and the Salem County Emergency Management Office should: review and revise the plans and procedures for operations at the Emergency News Center, and train together in a joint workshop with FEMA. The revised plans and procedures should clearly identify who is in charge at all times, who has lead responsibility for conducting briefings both before and after protective actions have been ordered by the Governor or his designee, and should emphasize the importance of providing accurate information at all times.

**Schedule of Corrective Actions:** This objective will be re-demonstrated in an out of sequence activity prior to the next biennial exercise.

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**1.6 WSNJ Emergency Alert System Gateway Station**

- a. **MET:** Objectives 10 and 11
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**1.7 State Access Control Point**

Demonstrated out-of-sequence on April 12, 2002, at Salem County EOC.

- a. **MET:** Objective 17
- b. **DEFICIENCY:** None

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- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

## **2 RISK JURISDICTIONS**

### **2.1 COUNTIES**

#### **2.1.1 Salem County**

##### **2.1.1.1 Salem County Emergency Operations Center**

- a. MET: Objectives 1, 2, 3, 4, 5, 10, and 14**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**
- e. PRIOR ARCAs - RESOLVED: None**
- f. PRIOR ARCAs - UNRESOLVED: None**

##### **2.1.1.2 Salem County School Interviews and Bus Run**

School interviews conducted out-of-sequence on April 12, 2002, at the following locations:

- Elsinboro School
- Lower Alloways Creek School
- Quinton School
- Salem Middle School
- Morris Goodwin School
- Woodland Country Day School

A school bus run was conducted out-of-sequence at Lower Alloways Creek School on April 12, 2002.

- a. MET: Objective 16**
- b. DEFICIENCY: None**
- c. AREAS REQUIRING CORRECTIVE ACTION: None**
- d. NOT DEMONSTRATED: None**

- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

#### **2.1.1.3 Salem County Congregate Care Center**

Demonstrated out-of-sequence at Penns Grove Middle School on April 12, 2002.

- a. **MET:** Objective 19
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

#### **2.1.1.4 Salem County Medical Drill**

Demonstrated out-of-sequence on May 23, 2002, as follows:

- Hospital–Memorial Hospital of Salem
  - Transportation–Lower Alloways Creek First Aid Squad
- a. **MET:** Objectives 20 and 21
  - b. **DEFICIENCY:** None
  - c. **AREAS REQUIRING CORRECTIVE ACTION:** None
  - d. **NOT DEMONSTRATED:** None
  - e. **PRIOR ARCAs - RESOLVED:** None
  - f. **PRIOR ARCAs - UNRESOLVED:** None

#### **2.1.1.5 Salem County General Population Bus Run**

A general population bus run for transit-dependent persons was demonstrated out-of-sequence on April 12, 2002, at Elsinboro Township.

- a. **MET: Objective 15**
- b. **DEFICIENCY: None**
- c. **AREAS REQUIRING CORRECTIVE ACTION: None**
- d. **NOT DEMONSTRATED: None**
- e. **PRIOR ARCAs - RESOLVED: None**
- f. **PRIOR ARCAs - UNRESOLVED: None**

**2.1.1.6 Salem County Emergency Worker Decontamination Center**

Demonstrated out-of-sequence at Pennsville Fire Department on April 4, 2002.

- a. **MET: Objective 22**
- b. **DEFICIENCY: None**
- c. **AREAS REQUIRING CORRECTIVE ACTION: None**
- d. **NOT DEMONSTRATED: None**
- e. **PRIOR ARCAs - RESOLVED: None**
- f. **PRIOR ARCAs - UNRESOLVED: None**

**2.1.2 Cumberland County**

**2.1.2.1 Cumberland County Emergency Operations Center**

- a. **MET: Objectives 1, 2, 3, 4, 5, and 14**
- b. **DEFICIENCY: None**
- c. **AREAS REQUIRING CORRECTIVE ACTION: None**
- d. **NOT DEMONSTRATED: None**



- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

#### **2.1.2.2 Cumberland County School Interviews and Bus Run**

A school interview and school bus run were conducted out-of-sequence on April 23, 2002, at Stow Creek School.

- a. **MET:** Objective 16
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

#### **2.1.2.3 Cumberland County Congregate Care Center**

Demonstrated out-of-sequence at Vineland High School on April 23, 2002.

- a. **MET:** Objective 19
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

#### **2.1.2.4 Cumberland County General Population Bus Run**

Demonstrated out-of-sequence as follows on April 12, 2002:

- Mobility-impaired persons at Stow Creek
- Hearing-impaired persons at Greenwich

- a. MET: Objective 15
- b. DEFICIENCY: None
- c. AREAS REQUIRING CORRECTIVE ACTION: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ARCAs - RESOLVED: None
- g. PRIOR ARCAs - UNRESOLVED: None

#### **2.1.2.5 Cumberland County Reception Center**

Demonstrated out-of-sequence at Bridgeton High School on May 22, 2002.

- a. MET: Objective 18
- b. DEFICIENCY: None
- c. AREAS REQUIRING CORRECTIVE ACTION: None
- d. NOT DEMONSTRATED: None
- e. PRIOR ARCAs - RESOLVED: None
- f. PRIOR ARCAs - UNRESOLVED: None

## **2.2 MUNICIPAL EMERGENCY OPERATIONS CENTERS**

### **2.2.1 Salem County Municipalities**

#### **2.2.1.1 Town of Lower Alloways Creek Emergency Operations Center**

- a. MET: Objectives 1, 2, 3, 4, and 5
- b. DEFICIENCY: None
- c. AREAS REQUIRING CORRECTIVE ACTION: None

- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.2.1.2 Pennsville Township Emergency Operations Center**

- a. **MET:** Objectives 1, 2, 3, 4, and 5
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.2.1.3 Salem City Emergency Operations Center**

- a. **MET:** Objectives 1, 2, 3, 4, 5, and 15
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.2.1.4 Mannington Township Emergency Operations Center**

- a. **MET:** Objectives 1, 2, 3, 4, and 5
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.2.1.5 Quinton Township Emergency Operations Center**

- a. **MET:** Objectives 1, 2, 3, 4, and 5
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.2.1.6 Elsinboro Township Emergency Operations Center**

- a. **MET:** Objectives 1, 2, 3, 4, 5, 10, and 15
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.2.2 Cumberland County Municipalities**

**2.2.2.1 Greenwich Township Emergency Operations Center**

- a. **MET:** Objectives 1, 2, 3, 4, 5, 10, and 15
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

**2.2.2.2 Stow Creek Township Emergency Operations Center**

- a. **MET:** Objectives 1, 2, 3, 4, 5, and 15
- b. **DEFICIENCY:** None
- c. **AREAS REQUIRING CORRECTIVE ACTION:** None
- d. **NOT DEMONSTRATED:** None
- e. **PRIOR ARCAs - RESOLVED:** None
- f. **PRIOR ARCAs - UNRESOLVED:** None

## APPENDIX 1

### ACRONYMS AND ABBREVIATIONS

The following is a list of the acronyms and abbreviations that were used in this report.

ARCA	Area Requiring Corrective Action
CC	Cumberland County
CCEOC	Cumberland County Emergency Operations Center
CCMEOCs	Cumberland County Municipal Emergency Operations Centers
CFR	Code of Federal Regulations
CPM	Counts Per Minute
DOT	U.S. Department of Transportation
DRD	Direct Reading Dosimeter
EAS	Emergency Alert System
EC	Emergency Coordinator
ECCS	Emergency Core Cooling System
ECG	Event Classification Guide
ECL	Emergency Classification Level
EDO	Emergency Duty Officer
EMS	Emergency Medical Services
ENC	Emergency News Center
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EOPs	Emergency Operations Plans
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
ICF	ICF Consulting, Inc.
KI	Potassium Iodide
LCO	Limiting Condition of Operation
mR	milliRoentgen
mR/h	milliRoentgen per hour
MWD	Megawatt Days
NJ	New Jersey

NJBNE	New Jersey Bureau of Nuclear Engineering
NJBNE-EOF Facility	New Jersey Bureau of Nuclear Engineering–Emergency Operations
NJBNE-FCP	New Jersey Bureau of Nuclear Engineering–Forward Command Post
NJOEM	New Jersey Office of Emergency Management
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980
OEM	Office of Emergency Management
ORO	Offsite Response Organization
OSC	Operations Support Center
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
PIO	Public Information Officer
PPM	Parts per million
PSEG	Public Service Electric and Gas Company
R	Roentgen
RAC	Regional Assistance Committee
RACES	Radio Amateur Civil Emergency Service
RCS	Reactor Coolant System
REM	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RHR	Residual Heat Removal
R/h	Roentgen(s) per hour
SCEOC	Salem County Emergency Operations Center
SCMEOCs	Salem County Municipal Emergency Operations Centers
SEOC	State Emergency Operations Center (New Jersey)
SERF	Standard Exercise Report Format
SFA	State Field Activities
S/HC NGS	Salem/Hope Creek Nuclear Generating Station
SOP	Standard Operating Procedures
TL	Team Leader
TLD	Thermoluminescent Dosimeter

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USDA

U.S. Department of Agriculture



## APPENDIX 2

### EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who evaluated the Salem/Hope Creek Nuclear Generating Station exercise on April 11, 2000. Evaluator Team Leaders are indicated by the letters "TL" after their names. The organization which each evaluator represents is indicated by the following abbreviations:

FEMA	Federal Emergency Management Agency
NRC	U.S. Nuclear Regulatory Commission
USDA	U.S. Department of Agriculture
DOT	U.S. Department of Transportation
ICF	ICF Consulting, Inc.

EVALUATION SITE	EVALUATOR	ORGANIZATION
STATE OF NEW JERSEY		
SEOC - Exercise Oversight	B. Hasemann (Acting RAC Chair)	FEMA
SEOC	S. O'Neil (TL)	FEMA
SEOC	D. Goldbloom-Helzen	ICF
SEOC	D. Petta	DOT
EOF	B. Bores (TL)	NRC
EOF	B. Black	ICF
Bureau of Nuclear Engineering - FCP	T. Brown	ICF
Bureau of Nuclear Engineering - FCP	A. Ball	ICF
Field Monitoring Team	M. Geer	ICF
ENC	M. Beeman (TL)	FEMA
ENC	B Jones	FEMA
EAS Gateway Radio Station WBSS	J. McClanahan	ICF

EVALUATION SITE

EVALUATOR

**SALEM COUNTY**

SCEOC	K. Reed (TL)	FEMA
SCEOC	A. Davis	FEMA
SCEOC	W. Gawlak	ICF
Salem Co. - School Interviews & Bus Run*	K. Reed	FEMA
Salem Co. - Congregate Care Center*	K. Reed	FEMA
Salem Co. - General Population Bus Run*	K. Reed	FEMA
Salem Co. - Reception Center*	K. Reed	FEMA
Salem Co. - Emergency Worker Decon*	K. Reed	FEMA
Salem Co. - Medical Drill*	K. Reed	FEMA
Salem Co. - Route Alerting*	K. Reed	FEMA

**SALEM COUNTY MUNICIPALITIES**

	K. Reed (TL)	FEMA
Lower Alloways Creek EOC	A. Kellogg	ICF
Pennsville EOC	W. Lueders	ICF
Salem City EOC	L. Slagle	ICF
Mannington EOC	E. Penner	USDA
Quinton EOC	Colin Harding	ICF
Elsinboro EOC	G. Goforth	ICF

**CUMBERLAND COUNTY**

CCEOC	K. McCarroll (TL)	FEMA
CCEOC	P. Malool	FEMA
CCEOC	E. Boaze	ICF
CC - School Interviews & Bus Run*	K. Reed	FEMA
CC - Congregate Care Center*	K. Reed	FEMA
CC - General Population Bus Run*	K. Reed	FEMA
CC - Route Alerting*	K. Reed	FEMA

**CUMBERLAND COUNTY MUNICIPALITIES**

Greenwich EOC	T. McCance	ICF
Stow City EOC	B. Fernande	ICF

\* Out-of-Sequence Demonstration

### **APPENDIX 3**

#### **EXERCISE OBJECTIVES AND EXTENT-OF-PLAY AGREEMENT**

##### **2002 S/HC NGS PLUME EXERCISE**

March 19, 2002

##### **GENERAL INFORMATION**

**EXERCISE DATE:** March 19, 2002

**SCENARIO:** There will be no need to emit detectable levels of iodine, as long as a discussion of the need to take potassium iodide (KI) ensues at the State Emergency Operations Center (SEOC). The Protective Action Guide (PAG) does not need to be exceeded. Plant status will be contained in the scenario.

**OUT OF SEQUENCE DEMONSTRATIONS:** Whenever feasible, the New Jersey Office of Emergency Management (NJOEM) and FEMA will work together to conduct out-of-sequence exercise demonstrations which produce cost-savings without jeopardizing the intent of the exercise process or the health and safety of the public.

##### **2002 S/HC NGS EXERCISE**

March 19, 2002

##### **DRAFT EXTENT OF PLAY INFORMATION**

#### **OBJECTIVE 1: MOBILIZATION OF EMERGENCY PERSONNEL**

NJOEM and the New Jersey Bureau of Nuclear Engineering (NJBNE) radiological emergency response personnel live in various areas of the State. The artificiality of the exercise time line often hinders what may be determined to be a "timely" response. Organizations will respond 60-minutes following receipt of the ALERT declaration. The NJBNE will pre-position personnel at all emergency facilities..

**LOCATIONS OBSERVED:** STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, ENC, EOF and NJBNE-FCP

**DATE:** March 19, 2002

**OBJECTIVE 2: FACILITIES-EQUIPMENT, DISPLAYS, AND WORK ENVIRONMENT**

Generators provide backup power at municipal EOCs within the 10-mile EPZ. The Emergency News Center (ENC) has a generator to provide backup power. Radiological monitoring points and population by evacuation area will not be displayed on maps at the county or municipal EOCs since accident assessment, by State statute, is a State responsibility. An automated information system, "EMITS," will be used as an event log/status board at the State EOC and ENC. Ingestion pathway 50-mile EPZ agricultural information is on file at the SEOC. The State, county, and municipal EOCs may be set up in advance of the exercise.

LOCATIONS OBSERVED: STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, ENC, EOF and NJBNE-FCP

DATE: March 19, 2002

**OBJECTIVE 3: DIRECTION AND CONTROL**

The staff of the NJOEM, as well as other locations, will demonstrate the capability to direct and control emergency operations and perform all of their assigned responsibilities as outlined in the New Jersey Radiological Emergency Response Plan (RERP).

LOCATIONS OBSERVED: STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, EOF, and NJBNE-FCP

DATE: March 19, 2002

**OBJECTIVE 4: COMMUNICATIONS**

The telephone and fax is the primary means of communications among emergency facilities. Radio is the backup method of communications at emergency facilities. Field monitoring teams will use radios as their primary means of communications, with cell phones as backup.

LOCATIONS OBSERVED: STATE EOC, SCEOC, SCMEOCs, CCEOC, CCMEOCs, EOF, ENC, SFA, and NJBNE-FCP

DATE: March 19, 2002

**OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL**

One emergency worker exposure control kit will be utilized in each municipal EOC. No thermoluminescent dosimeters (TLDs) will be distributed during this exercise, but their location and recording methodology will be explained to the evaluator. County and municipal

coordinators will show the evaluator an SOP regarding TLD distribution and record keeping. TLDs are kept at the county EOCs where they can be inspected by evaluators. EMCs who distribute more than the minimum requirement of emergency worker kits will not be penalized. "Maximum authorized mission exposure limits" may be referred to as "mission dose" or "dose limit." The New Jersey limit is 1.25 Rem. This is applicable to all demonstrations involving Objective 5. Direct reading dosimeters (DRDs) in the emergency worker exposure control kits contain 0-20 R and 0-200 mR dosimeters. Inspection dates (including leak test information) for this instrumentation are on file at the NJOEM Radiation Laboratory and will be visually inspected and evaluated by FEMA staff prior to the exercise. KI will not be distributed. It is stored at the State OEM and at the County OEM until an actual incident.

LOCATIONS OBSERVED: SCEOC, SCMEOCs, CCEOC, CCMEOCs, NJBNE-FCP, and SFA.

DATE: March 19, 2002

**OBJECTIVE 6: FIELD RADIOLOGICAL MONITORING-AMBIENT RADIATION MONITORING**

Instrument source checks will be conducted in accordance with NJBNE SOP-302, Attachment 302-1, page 5 of 5. A barium source (Ba-133) will be shared by State and county field monitoring teams.

LOCATION: OBSERVED: NJBNE-FCP and SFA

**OBJECTIVE 7: PLUME DOSE PROJECTION**

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering. The primary method for estimating projected doses will be the Radiological Assessment System for Consequence Analysis (RASCAL) Model. This dose projection model was developed for the NRC and is available for any nuclear emergency response organization.

LOCATION: OBSERVED: EOF

DATE: March 19, 2002

**OBJECTIVE 8: FIELD RADIOLOGICAL MONITORING - AIRBORNE RADIOIODINE AND PARTICULATE ACTIVITY MONITORING**

Due to personnel changes, the State will utilize two field monitoring teams. Only one of the State field monitoring teams will be evaluated during the exercise.

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Field team instrument check-out and air sampling will be demonstrated prior to the beginning of the exercise. This will be out-of-sequence with the exercise scenario at the NJBNE-FCP in Mannington Township. In accordance with NJBNE SOP-302, during the field demonstration, gamma exposure rates will be measured utilizing a Ludlum Model 3 secured onto the NJBNE emergency response vehicle.

LOCATION: OBSERVED: NJBNE-FCP and SFA

DATE: March 19, 2002

**OBJECTIVE 9: PLUME PROTECTIVE ACTION DECISION MAKING**

Independent Protective Action Recommendations (PAR) are made at the EOF by NJBNE staff and Utility staff. The Protective Action Decisions (PAD) are made by the Governor or Governor's Authorized Representative at the SEOC. Please refer to NJ SOP-305 and NJ SOP-901, which outline this process.

LOCATION OBSERVED: STATE EOC

DATE: March 19, 2002

**OBJECTIVE 10: ALERT AND NOTIFICATION**

EAS: Time will be observed for the first EAS message. This will trigger the simulated activation of the Alert and Notification sirens and simulated broadcast of the EAS message.

LOCATION OBSERVED: STATE EOC and EAS Radio Station WBSS

DATE: March 19, 2002

SIRENS: Sirens will be simulated during the exercise. No sirens will be sounded. The EAS radio message (Radio Station WBSS) will not be broadcast.

LOCATION OBSERVED: SCEOC

DATE: March 19, 2002

ROUTE ALERTING: Route alerting will be demonstrated via discussion at the municipal EOCs in Elsinboro Township and Greenwich Township. The demonstration will take place out-of-sequence during the exercise. If the townships elect to field test the route, the State Controller will accompany the responders.

LOCATIONS OBSERVED: Elsinboro Township, Greenwich Township

DATE: March 19, 2002

**OBJECTIVE 11: PUBLIC INSTRUCTIONS AND EMERGENCY INFORMATION**

Census data indicates that no other language besides English should be broadcast. EAS messages will be generated from the SEOC during the exercise. The first EAS message will be timed.

LOCATIONS OBSERVED: STATE EOC, EAS Radio Station WBSS

DATE: March 19, 2002

**OBJECTIVE 12: EMERGENCY INFORMATION - MEDIA**

The "EMITS" system serves as an automated status board in the NJ Room at the ENC. Press releases will be generated from the SEOC during the exercise. Periodic press briefings will be jointly conducted at the ENC by representatives from the Utility and the States of New Jersey and Delaware.

LOCATION OBSERVED: ENC

DATE: March 19, 2002

**OBJECTIVE 13: EMERGENCY INFORMATION - RUMOR CONTROL**

Five rumor control operators will handle ten calls per operator. One "false" trend will be tracked and addressed through the Public Information Officer (PIO) at the SEOC and staff at the ENC.

LOCATION OBSERVED: STATE EOC and ENC

The Rumor Control staff failed to note the escalation of the Emergency Classification Level (ECL) from Alert to General Emergency which could result in dissemination of inaccurate information.

DATE: March 19, 2002

**OBJECTIVE 14: IMPLEMENTATION OF PROTECTIVE ACTIONS - USE OF KI FOR EMERGENCY WORKERS, INSTITUTIONALIZED INDIVIDUALS, AND THE GENERAL PUBLIC**

New Jersey's RERP does not include KI distribution to the general public. There will be a discussion on the need to take KI, although levels of radioiodine need not exceed the PAGs.

LOCATION OBSERVED: STATE EOC, NJBNE-EOF, NJBNE-FCP, SCEOC, and CCEOC

DATE: March 19, 2002

**OBJECTIVE 15: IMPLEMENTATION OF PROTECTIVE ACTIONS - SPECIAL POPULATIONS**

MOBILITY-IMPAIRED NOTIFICATION: Evacuation of mobility-impaired persons will be demonstrated via discussion during the exercise at the municipal EOCs in Salem City and Stow Creek Township. The list of mobility-impaired persons will be provided to the FEMA evaluator. If the townships elect to field test the route, the State Controller will accompany the responders.

LOCATIONS OBSERVED: Salem City, Stow Creek Township

DATE: March 19, 2002

TRANSIT-DEPENDENT BUS RUN: Evacuation of transit-dependent persons will take place out-of-sequence of the exercise. One bus from R.H. Williams Bus Company will demonstrate transit-dependent evacuation. The demonstration will take place in Elsinboro Township.

LOCATION OBSERVED: Elsinboro Township

DATE: April 12, 2002

HEARING IMPAIRED NOTIFICATION: Hearing impaired notification will be demonstrated via discussion at the municipal EOCs in Elsinboro Township and Greenwich Township. A copy of the list of hearing-impaired persons will be available to the FEMA evaluator. If the townships elect to field test the route, the State Controller will accompany the responders.

LOCATION OBSERVED: Elsinboro Township, Greenwich Township

DATE: March 19, 2002

**OBJECTIVE 16: IMPLEMENTATION OF PROTECTIVE ACTIONS - SCHOOLS**

School Superintendent/Principal interviews will take place, out-of-sequence with the exercise, at the following locations:

Elsinboro School  
Lower Alloways Creek School  
Quinton School  
Salem Middle School



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Morris Goodwin School  
Stow Creek School  
Woodland Country Day School

DATE: Salem County: April 12, 2002  
Cumberland County: April 23, 2002

A school bus evacuation route demonstration will take place, out-of-sequence with the exercise, from the Lower Alloways Creek School and the Stow Creek School.

DATE: Salem County: April 12, 2002  
Cumberland County: April 23, 2002

**OBJECTIVE 17: TRAFFIC AND ACCESS CONTROL**

An Access Control Post (chosen by FEMA) at the five-mile ring will be demonstrated by the NJ State Police out-of-sequence with the exercise.

DATE: April 12, 2002

**OBJECTIVE 18: RECEPTION CENTER - MONITORING, DECONTAMINATION AND REGISTRATION**

The facilities will be set up prior to the arrival of the FEMA evaluator. A portal monitor will be used for monitoring. At least one-third of the required monitors will be present and six evacuees will be inspected. At least two vehicles will be monitored and decontaminated.

Plastic sheeting will be available, but will not be spread on the floor. The action level for the presence of contamination is 1,000 counts per minute (cpm) for the Ludlum Model 3 and five times above background for the Ludlum Model 177-10.

LOCATION OBSERVED: Bridgeton High School

DATE: May 22, 2002

**OBJECTIVE 19: CONGREGATE CARE**

A Congregate Care Center will be demonstrated out-of-sequence with the exercise. The capacity of the facility will be posted.

LOCATION OBSERVED: Penns Grove Middle School, Vineland High School

DATE: Salem County: April 12, 2002

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Cumberland County: April 23, 2002

**OBJECTIVES 20 AND 21: MEDICAL SERVICES-TRANSPORTATION, FACILITIES**

The demonstration will take place out-of-sequence with the exercise. The participants will demonstrate the ability to respond to a radiological emergency and demonstrate the adequacy of equipment, personnel, and procedures to transport a contaminated individual from an accident scene to the Memorial Hospital of Salem County.

LOCATIONS OBSERVED: Lower Alloways Creek First Aid Squad  
Memorial Hospital of Salem County

DATE: May 23, 2002

**OBJECTIVE 22: EMERGENCY WORKERS, EQUIPMENT, AND VEHICLES -  
MONITORING AND DECONTAMINATION**

The facility's setup will be observed by FEMA. Plastic sheeting will be available, but will not be spread on the floor. The action level for the presence of contamination is 1,000 cpm above background for the Ludlum Model 3 and five times above background for the Ludlum Model 177-10. This demonstration will take place out-of-sequence with the exercise.

LOCATION OBSERVED: Pennsville Fire Department

DATE: April 4, 2002

## APPENDIX 4

### SCENARIO SUMMARY

The drill will begin at 1600 hours. The simulator crew will report to the simulator at 1530. Only the simulator crew, chemistry and one Nuclear Engineering Officer will be pre-staged. All other facilities will be notified using page announcements and the Callout System. An Operations crew will be performing operations in the Salem simulator beginning at 1600.

#### **Initial Conditions:**

**Salem 1** is at 100% power at middle of life.

**Salem 2** is at 100% Power at middle of life (10400 Megawatt Days (MWD)) and has been on-line continuously for 16 months. CBoron is 830 parts per million (ppm).

**Hope Creek** is at 100% Power and has been on-line for the past eight months.

All major equipment is operable with the following exceptions:

1. **21 AFW Pump** is Cleared and Tagged to repair the pump for high vibration discovered during surveillance testing. Tech Spec Limiting Condition of Operation (LCO) 3.7.1.2 was entered at 0523 this morning.
2. **Unit 3** is tagged out for fuel supply repairs.

#### **AT 1600 DRILL BEGINS**

At 1605, PT-505, 1st stage Turbine Impulse, fails low.

At 1630, a **DBA LOCA** (23 RCS Loop) occurs and the **loose parts monitor goes into alarm**.

At 1635, Containment radiation levels begin slowly increasing as indicated by the R44A and R44B containment radiation monitors. The R44 monitors will not get above 175 R/hour.

At 1635, the 21 residual heat removal (RHR) Pump breaker trips and is damaged.

At 1645 or sooner an **ALERT** should be declared by the Emergency Coordinator based on:

**ALERT**

**EAL 3.2.2.b, Subcooling is 0° as a result of RCS leakage.**

**OR**

**EAL 3.2.4, Valid Containment Radiation level**

**(RCS Barrier = 4 pts.)**

The EC will implement Event Classification Guide (ECG) Attachment 2 for the Alert Declaration.

At 1705, 22 RHR Pump is lined up for cold leg recirculation.

~1710, 22CS36 will not reposition from the control room when emergency operations procedures (EOPs) direct operators to open.

At 1844, the suction piping to the 22 RHR pump breaks causing a release from Containment to the Auxiliary Building. 30-seconds later, the 22 RHR Pump trips on overcurrent.

At 1845, the R44A and R44B rad monitors read greater than 300R/hr. Suction valve 22SJ44 cannot be shut. This is due to debris from the break in the RHR line jamming open the valve. If an attempt is made to shut the valve, it indicates mid-position. The 22SJ44 valve supply breaker trips opens and is damaged. (Radiation levels are too high to allow manual closure.) The supply breaker to the valve cannot be fixed until 2210.

The loss of RHR causes a loss of RHR recirculation that results in a complete loss of emergency core cooling system (ECCS) recirculation capability. Reactor vessel level eventually drops. Core begins to uncover and core temperatures rise.

At 1900 or sooner a GENERAL EMERGENCY should be declared by the Emergency Coordinator (EDO) based on

**GENERAL EMERGENCY**

**EAL 3.1.5, R44A or R44B > 300R/hr**

**AND**

**EAL 3.2.2.b, Subcooling is 0o as a result of RCS leakage.**

**AND**

**EAL 3.3.3.b, Valid Containment Phase A/B/Containment Vent Isolation Signal AND Flow Path from Containment to the Environment.**

**(Loss of Fuel Clad, RCS and Containment Barriers = 10 pts.)**

The EC will implement ECG Attachment 4 for the General Emergency Declaration. A 10-point keyhole type PAR must also be made.

At 1900, the RHR pump breaker is restored. 21 RHR pump is restarted, cold leg recirculation and ECCS flow are restored.

At 2025, a fire occurs in the 21 Safety Injection Pump. The 21 Safety Injection Pump fails to trip.

At or before 2040, fire is out.

At 2045, the 21 Safety Injection Pump trips on its own.

At 2050, a man performing fire recovery slips on the water and is injured and contaminated. Site protection responds and transports the victim to the sally port.

At 2115, a large leak develops in the #4 Service Water Bay.

At 2130, report on the injured man is received from the Salem hospital.

At 2205, the 22SJ44 supply breaker is repaired and this information is reported to the Operations Support Center (OSC).

At 2210, the 22SJ44 valve is shut terminating the release (debris has dislodged from the 22SJ44 valve).

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At 2230-2300 or when all objectives have been met, the drill is terminated.